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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NI, SUHAN

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/680,429

Applicant(s)

TABATA, HAJIME

Examiner

Suhan Ni

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2002.
- 2a) ☒ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- ☐ Interview Summary (PTO-413) Paper No(s). _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to the amendment filed on 12/27/2002.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features of “the speaker (10) including a flat piezo-film curvedly supported to form at least one curved portion” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 7-14 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding all the claims, it is not clear how does the flat piezo-film have at least a radius of curvature as claimed. In Figs. 1-2, the piezo-film speaker (10) is substantially flat with no curvature at all. Furthermore, it is not clear how does a curved piezo-film (101) have been utilized into a flat speaker (10) of a motorcycle helmet (please see Figs. 1-2 and 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (US-5,309,519).

Regarding claim 1, Park et al. disclose a piezo-film speaker, comprising: a flat piezo-film (1010) curvedly supported to form at least one curved portion, said flat piezo-film having at least a radius of curvature and a principal surface (Fig. 10). But Park et al. do not clearly teach that the radius is in a range of equal or larger than 20 cm or the surface is in a range equal or larger than 40 cm*cm as claimed. Since Park et al. do utilize the flat piezo-film in many applications and do not restrict to any specific configurations for the film, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a flat piezo-film with desirable configurations, such as a slightly curved configuration (with a rather large radius and sufficient active surface area), for any suitable supporting structure, in order to generate desirable sound.

Regarding claim 2, Park et al. do not clearly teach that a radius is in a range of 21-36 cm as claimed. Since Park et al. do utilize the flat piezo-film in many applications and do not restrict to any specific configurations, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a flat piezo-film with a properly curved

configuration, such as a radius of 30 cm, for a suitable supporting structure with a 30 cm radius curved surface, in order to generate desirable sound.

Regarding claim 3, Park et al. do not clearly teach that an area is in a range of 40-100 cm*cm as claimed. Since Park et al. do utilize the flat piezo-film in many applications and do not restrict to any specific configurations, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a flat piezo-film with a properly sized active surface area, such as 50 cm*cm, for a suitable supporting structure, in order to generate sufficient acoustic output.

Regarding claim 4, Park et al. do not clearly teach that a radius is in a range of 21-36 cm and an area is in a range of 40-100 cm*cm as claimed. Since Park et al. do utilize the flat piezo-film in many applications and do not restrict to any specific configurations, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a flat piezo-film with a properly curved configuration and a properly sized active surface area, such as a radius of 30 cm and an area of 50 cm*cm, for a suitable supporting structure with a 30 cm radius curved surface, for generating desirable sound with sufficient acoustic output.

Furthermore, regarding claims 1-4, it is well known in the art, that changing the radius of a curved surface of a piezoelectric-film transducer would directly effect the characteristics of the transducer, since the pattern of X, Y, Z-directional bending waves applied to the film has been rearranged. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide a flat piezo-film with a properly curved configuration and a properly sized active surface area, such as a radius of 30 cm and an area of 50 cm*cm, for a suitable supporting structure with a 30 cm radius curved surface, for generating sound with desirable acoustic characteristics and sufficient acoustic output.

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Regarding claims 5-6 and 15, Park et al. do not clearly teach that a film with a thickness of 110 um as claimed. Since Park et al. do utilize the flat piezo-film in many applications and do not restrict to any specific configurations, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a film or a film like with a proper thickness, such as a 110 um or 28 um thickness as a coating for any port of the piezo-film speaker, in order to generate desirable sound and make the speaker more durable.

Response to Amendment

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Suhan Ni** whose telephone number is **(703)-308-9322**, and the number for fax machine is **(703)-305-9508**. The examiner can normally be reached on Monday through Thursday from 9:00 am to 7:30 pm. If it is necessary, the examiner's supervisor, **Curtis Kuntz**, can be reached at **(703) 305-4708**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is **(703) 305-3900**.

Suhan Ni

03/03/2003

